In the specification:

Please replace paragraph 2, containing equation 18, on page 24 as follows:

Comparing Eqns. (15) and (17) and since $T_2 = 2T_{ON}$ at the peak of the sine waveform,

$$R_R C \frac{V_E}{V_R} = \frac{T_2}{L_1/L_2 - \left(L_1/L'\right) \times \left(N_1/N_2\right) \times \left(\frac{V_o}{V_m \sin \omega t}\right)} \qquad (18)$$

$$R_R C \frac{V_E}{V_R} = \frac{T_2}{L_1/L_2 - \left(L_1/L'\right) \times \left(N_1/N_2\right) \times \left(\frac{V_o}{V_m \sin \omega t}\right)} \qquad (18)$$

Please replace paragraph one, containing equation 30, on page 36 as follows:

Those of skill in the art will appreciate that the EPROM is loaded with data corresponding to the following formula derived earlier:

$$R_R C \frac{V_E}{V_R} = \frac{T_2}{L_1/L_2 - \left(L_1/L'\right) \times \left(N_1/N_2\right) \times \left(\frac{V_o}{V_m \sin \omega t}\right)} \qquad (30)$$

$$R_R C \frac{V_E}{V_R} = \frac{T_2}{L_1/L_2 - \left(L_1/L'\right) \times \left(N_1/N_2\right) \times \left(\frac{V_o}{V_m \sin \omega t}\right)} \qquad (30)$$

It may be re-iterated that the stored EPROM data does not represent the instantaneous values of the input AC voltage waveform itself. Rather, it represents a sine-weighted string of duty cycles that the MOSFET should operate with at various time instants of the input AC waveform, so that a sinusoidal current is drawn from the input AC supply. The data for the first quarter of the rectified sine wave (0^o to 90^o) is given in Table 1 (going from P to Q). For the second quarter of the sine wave (90^o to 180^o) the same data are programmed in reverse order, starting from the location 0060H, going backwards (going from Q to P). The locations still remaining un-programmed, are programmed with C4H.

Please replace paragraph 3, containing equation 39, on page 38 as follows:

Since, Eqn. (38) is independent of f, this equation is valid for $\theta_1 < \theta < \pi / 2$, and

~~$$D = \sqrt{\frac{V_m Sin\theta_1}{8\left\{2.5V_m Sin\theta - 2\left(\frac{N_1}{N_2}\right)V_0\right\}}} \quad \text{for } \theta_1 < \theta < (180 - \theta_1) \qquad (39)$$~~

$$D = \sqrt{\frac{V_m Sin\theta}{8\left\{2.5V_m Sin\theta - 2\left(\frac{N_1}{N_2}\right)V_0\right\}}} \quad \text{for } \theta_1 < \theta < (180 - \theta_1) \qquad (39)$$

provides the equation for the duty ratio in Phase 2.